



US Army Corps of Engineers



Technical Management Team 2008 Year End Review

Water Quality



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AVERAGE HIGH 12 HR %TDG EXCEEDANCES AT FMS FROM 1999 - 2008

	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	10 year Avg
Water Quality Gages	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.	Qty.
Lower Granite Forebay	0	0	0	0	0	0	0	5	2	0	0.7
Lower Granite Tailwater	35	0	28	0	0	15	17	0	4	15	11.4
Little Goose Forebay	34	0	24	0	3	10	17	0	2	39	12.9
Little Goose Tailwater	23	0	19	0	0	6	6	0	9	6	6.9
Lower Monumental Forebay	54	11	56	6	1	19	49	0	28	44	26.8
Lower Monumental Tailwater	32	7	29	7	1	10	6	0	12	26	13
Ice Harbor Forebay	55	31	51	3	4	35	24	0	34	44	28.1
Ice Harbor Tailwater	31	0	22	3	2	4	6	0	4	12	8.4
McNary Forebay - Wa.	21	6	31	8	10	24	43	1	14	22	18
McNary Forebay - Or.	--	--	--	11	23	32	45	5	22	19	15.7
McNary Tailwater	28	1	32	1	7	12	31	0	17	50	17.9
John Day Forebay	14	0	20	2	0	10	11	0	1	8	6.6
John Day Tailwater	17	3	38	3	0	0	29	0	12	43	14.5
The Dalles Forebay	17	8	40	6	5	11	18	0	5	1	11.1
The Dalles Tailwater	2	0	10	0	0	4	11	0	5	5	3.7
Bonneville Forebay	27	3	51	3	1	17	30	0	14	19	16.5
Cascade Island *	57	0	61	0	---	---	---	---	---	---	29.5
Warrendale	--	--	--	---	0	1	19	0	6	2	2.8
Camas/Washougal	68	29	63	16	14	33	65	2	58	51	39.9
Total Number of Exceedances	515	99	575	69	71	243	427	13	249	406	266.7



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6 Year Totals	2008	2007	2006	2005	2004	2003	TYPE #	DEFINITION
3021	514	99	2006	69	71	262	Totals	
389	400	0	306	11	4	68	1	Exceedance due to high runoff flows and flood control efforts.
316	64	93	69	32	16	106	6	Exceedance due to uncertainties when using best professional judgment to apply the spill guidance criteria (travel time; degassing; water temperature effects; spill patterns).
67	21	5	29	15	0	18	7	Exceedance due to high TDG levels coming from the Mid Columbia River Dam (see Pasco FMS readings).
55	12	0	3	7	25	20	12	Exceedance due to sharp rise in water temperature (a 1.5 degree F. or greater change in a day).
15	10	0	1	1	6	7	10	Exceedance due the FMS gage malfunctioning and registering very high TDG levels
43	5	0	3	0	7	33	13	Exceedance due to bulk spill pattern being used which generated more TDG than expected.
46	1	1	45	0	0	0	3	Exceedance due to unit outages during repair or maintenance.
9	1	0	0	0	0	9	11	Exceedance due to mechanical problems (gate was stuck open, passing debris etc.).
0	0	0	0	0	0	0	2	Exceedance due to Intertie line outages.
109	0	0	106	3	0	0	4	Exceedance due to BPA inability to handle load so water was spilled.
1	0	0	0	0	0	1	5	Exceedance due to a break down in communication. Teletype went out but no change occurred or Project operator interpreted teletype differently than what was intended.
3	0	0	0	0	3	0	8	Exceedance due to high TDG levels coming from the Snake River projects (see Ice Harbor Dam FMS readings).
0	0	0	0	0	0	0	9	Exceedance due to a load rejection. The powerhouse was not working and the river was spilled.
13	0	0	13	0	0	0	14	Exceedance due to non-functioning of flow deflectors during tailwater elevation above 19 ft and especially above 26 ft.



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Comparison of Oregon and Washington Calculation Methods For High 12 hour Average TDG

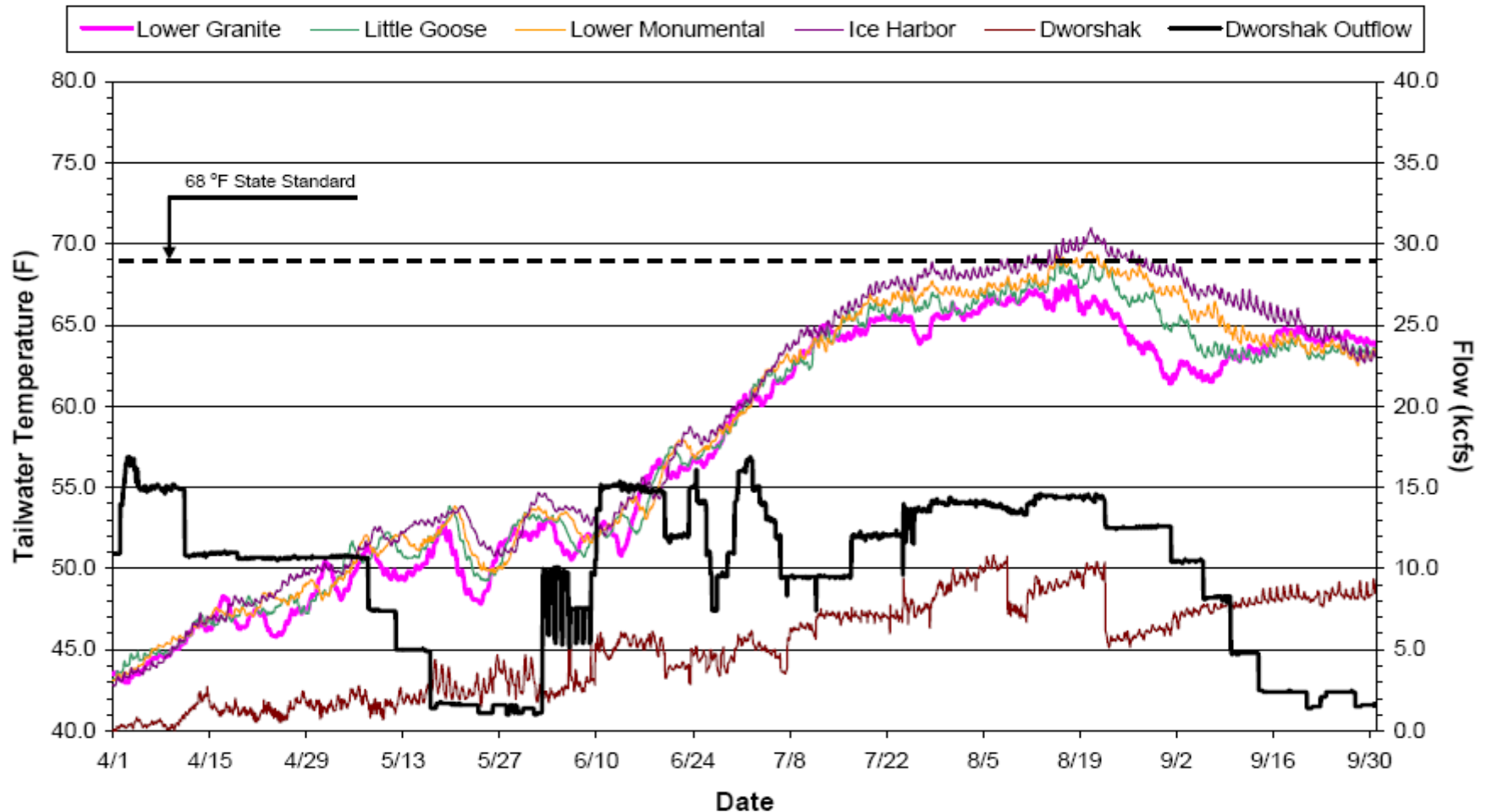
Water Quality Gages	Wa - 2008 Qty.	Or - 2008 Qty.	Difference Qty.
Lower Granite Forebay	0	0	0
Lower Granite Tailwater	37	35	2
Little Goose Forebay	36	34	2
Little Goose Tailwater	22	23	-1
Lower Monumental Forebay	57	54	3
Lower Monumental Tailwater	29	32	-3
Ice Harbor Forebay	57	55	2
Ice Harbor Tailwater	31	31	0
McNary Forebay	25	21	4
McNary Tailwater	28	28	0
John Day Forebay	17	14	3
John Day Tailwater	15	17	-2
The Dalles Forebay	18	17	1
The Dalles Tailwater	3	2	1
Bonneville Forebay	34	27	7
Cascade Island	57	57	0
Warrendale	--	--	--
Camas/Washougal	84	68	16
Total Number of Exceedances	550	515	35
Tailwater Exceedanceds	222	225	-3
Forebay Exceedances	328	290	38



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Lower Snake River Tailwater Temperatures and Dworshak Outflows
April 1 - September 30, 2008





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Contributing Flows and Temperatures into Lower Granite April 1 - September 30, 2008

